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FIELD NOTES ON THE REED AND MARSH WARBLERS.

BY HENRY SEEBOHM, F.Z.S.

THE Reed Warbler and the Marsh Warbler are closely allied species. Some English ornithologists, who from some cause or other have never made the personal acquaintance of both species, have refused to admit their distinctness. No doubt they are very closely allied; but in their song, habits, eggs, and geographical distribution they differ as much as a Blackbird differs from a Thrush. A newly moulted example, either after the spring or autumn moult, of the Reed Warbler can always be distinguished from a Marsh Warbler by the russet-brown of its rump and upper tail-coverts, which in the latter species are olive-brown. Examples in which the plumage is much abraded are, of course, somewhat difficult to distinguish.

The Reed Warbler is seldom found where reeds and flags do not abound, and in these reed-beds it generally builds its nest, and lays eggs having greenish brown spots upon a pale greenish brown ground. The Marsh Warbler, on the other hand, is seldom found where willows do not grow, and it prefers to build its nest in willow trees, often six feet or more from the ground. The ground colour of the eggs is almost white, and the spots consequently are much more conspicuous, and are greyer in colour. The range of the Reed Warbler extends further west. In many places in England it is a common bird, whilst in South-east Russia it is said to be very rare. The Marsh Warbler, on the contrary, has only doubtfully

been recorded as a British bird, but is common on the lower Volga.

The most striking difference—at least in the eyes, or rather in the ears, of a field ornithologist—is, however, to be found in the song of the two species. I had long wished to make the personal acquaintance of the Marsh Warbler, and having a morning at my disposal in Hanover, where both species are common in certain localities, I placed myself under the guidance of my friend Herr Post-Director Pralle, who undertook to introduce me to both species. Half an hour's walk from the city brought us to the banks of a river near Herrenhausen, where we found extensive reed-beds on both sides. We laid ourselves down on the grass and listened to the song of the Reed Warblers, which were hidden in the reeds and were singing lustily. The song is scarcely so loud as that of the Sedge Warbler, but nearly as harsh, and is seldom if ever varied by the more melodious flute-like tones which the Sedge Warbler introduces when in full song.

After having listened to the Reed Warbler until its song was thoroughly impressed upon our memories, we walked about a mile along the banks of the river until we came to a locality where willows took the place of reeds. We had no sooner arrived than we had an excellent opportunity of listening to the Marsh Warbler. The bird was singing brilliantly, perched in full view on the top of a willow bush. It is an incomparably finer singer than its near ally. It sings quite as loud, but its voice is much more melodious, and far more varied. Sometimes one might imagine that one was listening to the song of a rich-voiced Reed Warbler; but more frequently the melody reminded one of the songs of the Swallow, the Lark, or the melodious Willow Warbler, and often we came to the conclusion that the bird had taken lessons from a Nightingale or a Blue-throat. My friend maintained that the song was finer than that of the Nightingale. It was not nearly so loud, but almost as rich, and much more varied. The Marsh Warbler was common for some miles, and we listened with great pleasure to perhaps a score individuals, which generally allowed themselves to be seen, though occasionally they remained concealed in the trees; and after spending some hours amongst them, and afterwards returning

to the reed-beds where the Reed Warbler alone was to be heard, we came to the conclusion that no one who has ever heard the songs of both birds could ever think of uniting them as one species.

The date was the 21st of June, but both species were in full song. Like the Nightingale, the Marsh Warbler sings long after sunset, and perhaps midnight is the best time to hear the song to perfection.

ON THE CRY OF THE WHITE AND BROWN OWLS, AND THE SONG OF THE REDWING.

BY THE REV. A. MATTHEWS, M.A.

SOME years ago a good deal was said and written on the respective hooting and screeching of the White and Brown Owls. I myself took some part in the discussion, and have since regarded the controversy as a thing of the past; but Mr. Hart's note, in the June number of 'The Zoologist' (p. 254), has once more drawn attention to the subject, and induced me, while referring to what I have already stated, to add some facts of more recent observation.

No one could have enjoyed better opportunities for studying the life-history of these Owls than did my brother and myself. While boys we reared from the nest a young Brown Owl, which became so perfectly familiar that confinement was wholly unnecessary. From the first he enjoyed unrestricted liberty; as soon as he could fly he would accompany us wherever we went, and answer our call as obediently as a dog. His tameness continued after he had arrived at maturity, and although in the following spring he was often visited by wild birds of his own species, he never evinced any inclination to associate with them, his sole delight appearing to be centred in his masters. This state of things continued for two years, and it is needless to add that during that time we had abundant means of hearing every sound of which his voice was capable, and yet never heard any which at all approached a screech.

Our acquaintance with White Owls was carried on under equally favourable conditions. The tower of the parish church at Weston-on-the-Green, in Oxfordshire, is a solid square structure,

and stands within fifty yards of the parsonage house. This tower was annually, and may still be, the breeding quarters of birds of this species, and also their usual resort in the daytime at all periods of the year. Moreover, the greater part of the land in the parish was arable, and large barns were conspicuous in every farmyard. Consequently White Owls were among the commonest of the feathered tribes, and in the dark their vicinity would often be announced by a protracted and discordant screech.

In 1854 we left Weston-on-the-Green, the scene of the foregoing observations, and removed to our present home in Leicestershire. Here we found matters reversed, and Brown Owls by far more numerous than their allies. Our garden is very large, and contains within its precincts a portion of a large wood, by which it is bounded on the eastern side. This wood is the residence of many Brown Owls, and in 1877 a pair of these birds built their nest in a clump of fir trees in our own garden; they might be seen at any time throughout the summer. Often in the day, and always by night, loud and oft-repeated hootings proceeded from the trees around the nest; but I never heard a single screech.

Such has been my own experience, and such the opportunities of observation for a period of more than thirty years. I am therefore able distinctly and positively to assert that the normal cry of the Brown Owl, *Syrnium aluco*, is that "hoo-oo-oo-oo," known by the term "hooting," and that the normal cry of the White Owl, *Strix flammea*, is that discordant "screech," the fruitful cause of much alarm to superstitious minds, and, as I think, of much error to some naturalists. I cannot, and do not, assert that the White Owl is incapable of hooting; nor, on the other hand, that the Brown Owl is incapable of screeching. All that I can say in the matter is that I never heard a White Owl hoot, or a Brown Owl screech; and that it would require the positive and personal testimony of an ornithologist whose knowledge of these birds was beyond question to convince me that either species emits sounds so unusual to it.

The call-note of both species is almost exactly similar; it is often repeated as a prelude to their more specific noises, and may possibly have led to mistakes; but this does not affect anything that I have said, for I have often *seen* the Brown Owl hoot, and still more frequently have *seen* the White Owl screech, both on

the wing and at rest on the ridge of our house. Indeed it is a common habit of the latter species to utter its cry while flying, though I cannot remember that I ever saw a Brown Owl do so. Thus I have the evidence of my eyes, as well as my ears, to convince me of the truth.

It must not for a moment be supposed that the instances of optical evidence to which I refer occurred in doubtful twilight; on the contrary, all, or nearly all, were under the full light of the sun. The hooting which I have *seen* proceeded, of course, from our tame bird, either sitting on the lower branch of a tree or perched by my side on a garden seat. The screeching which I have *seen* was emitted by the parent birds in the act of bringing food to their young in the church-tower. When the young are grown large and require a liberal supply of food, the rapidity with which the old birds procure mice is almost incredible; it would really seem that they had an endless supply stored up ready for use. Many times in the course of each hour, from morning till night, one or other of the old birds might be seen returning to the tower, dangling below him at the full length of his long legs a mouse which he had just captured, and often as he approached sounding the dinner-bell *more suo* with a ringing screech.

In deference to the late Sir W. Jardine, I will not attempt to explain, much less to contradict, his oft-quoted statement; but, admitting its truth, I do not think that an isolated fact unsupported by further evidence can outweigh the result of continuous observation extending over a period of more than thirty years.

The greater part of the foregoing remarks were published long ago in "An Account of the Birds of Oxfordshire" (Zool. 1849). Soon after this had appeared, Mr. Morris, taking shelter under the wing of Sir W. Jardine, impugned the correctness of our premises, and declared our arguments to be inconclusive. As protracted controversies generally become tedious, as well as for other reasons, I did not at that time consider it worth my while to notice his criticisms. In the above history of my own experience, I now give the best, and in truth the only reply I can make; facts are stubborn things, and when founded upon original and actual observation are, I think, far more conclusive than ideas inspired by the statements of others.

These reminiscences of former days have brought to my recollection another and very similar subject—similar as to the tenour of the facts recorded, but far exceeding the history of the Owls in the amount of contradiction which it provoked. In the March number of 'The Zoologist' for 1864 (p. 8946) I related the fact of having myself on several occasions heard the Redwing singing in England, and detailed the circumstances of my observations at some length.

As soon as my note appeared it attracted a host of assailants, who seemed to strive who should contradict my assertion the most flatly. The greater part of their remarks, however, were conspicuous for a total absence of proof, and mainly consisted in the repetition of what had been written by others; but one and all seemed impressed with the idea that because they themselves had never heard the song of the Redwing in this country, it must naturally follow that no one else could possibly do so; although it is well known that Redwings do not leave us before the end of March, and it is equally well known that for a long time anterior to that date Thrushes will be in full song, especially when the season is forward and the weather warm. Some of these criticisms, indeed, were not more remarkable for the absence of anything like proof than for being deficient in common courtesy. Not content with implying that I was unable to understand the subject on which I had written, and could not distinguish twittering from a full song, one presumed to insinuate that I did not even know a Redwing from a Song Thrush, and another to suggest that I should immediately forward the specimen to him for determination! At length these attacks received a well-merited rebuke from the pen of the Rev. A. C. Smith (Zool. 1864, p. 9209), whose intimate acquaintance with the Redwing in its native haunts was indisputable; and after that I felt quite satisfied to let the matter drop.

But I now call the attention of my quondam assailants to a paragraph in 'Wild Life in a Southern County,' quoted at length on p. 192 of 'The Zoologist' for last year, in which the writer says:—"One spring I was struck day after day by hearing a loud, sweet, but unfamiliar note in a certain field. In a little while I succeeded in tracing it to an oak tree. I got under the oak tree, and there on a bough was a Redwing singing with all its might. This Redwing was singing sweet and loud, far louder than the

old familiar notes of the Thrush. The note rang out clear and high, and somehow sounded strangely unfamiliar amongst English meadows and English oaks. Then looking farther, and watching about the hedges there, I soon found that the bird was not alone; there were three or four pairs of Redwings in close neighbourhood, all evidently bent upon remaining to breed. To make quite sure I shot one. Afterwards I found a nest, and had the pleasure of seeing the young birds come to maturity, and fly."

Whoever the author of 'Wild Life in a Southern County' may be, he has evidently some knowledge of Ornithology, and his knowledge, moreover, has been derived from personal observation.* It is, therefore, no small gratification to me to find that it may now be considered within the bounds of possibility that I did hear the song of the Redwing in Oxfordshire on the occasion to which I have referred.

ON THE CHANGE OF COLOUR IN THE BOAR-FISH, AND THE GROWTH OF THE TURBOT.

BY FRANCIS DAY, F.L.S.

IN the tanks of the Westminster Aquarium are five examples of the Boar-fish, *Capros aper*, which are well worthy of a visit from anyone interested in observing how fishes may change colour under altered conditions of life.

On the 18th of June I happened to be present when sixteen examples arrived from Mr. Dunn, of Mevagissey, and, never having seen them in a state of nature, I took notes respecting their appearance. They were all of a rich red hue, as observed in some Gold Carp, while most of them had a dark band over the base of the tail just before the origin of the caudal fin; the outer edge of the ventrals was also dark-tipped. One had faint traces of vertical bands, and another had a row of black spots along the base of the dorsal fin.

On July 12th I again visited these fish. The tank in which they are placed is rather dark, while the water is not very clear. They all seem in good health, are lively, but strangely altered in

* Since this book was published anonymously, the author, Mr. Richard Jefferies, has in subsequent volumes disclosed his name.—ED.

colour. They may be described as being of a straw-colour, with broad dark vertical bands of a deep brown hue. The first passes over the head; the second from the first dorsal fin down to the outer third of the ventral; the third from the second dorsal, curving downwards and rather backwards to the anal fin; while the fourth band is over the free portion of the tail, the outer edge of which is white. Looking down from above upon these fish the bands are seen to meet on the back, while after death they almost entirely disappear.

Irrespective of the colours observed in this fish, a few notes may be of interest respecting its occurrence during the last half century, and rapid increase along our southern shores. The first capture recorded in the British Isles was in Mount's Bay, October, 1825; then solitary examples at Bridgwater, in 1833; at Teignmouth about the same time; at Lossiemouth in 1839, when a specimen seven inches long was sent to the Elgin Museum. On the 6th March, 1842, one was found alive on the beach at Brighton, and considered such a rare acquisition that it was sent for her Majesty's acceptance, when H.R.H. the Prince Consort was the first who recognised and correctly identified the fish as *Capros aper*.

One was taken at Falmouth in 1841; while, on August 12th, 1843, the shore on the western side of Plymouth was strewn with numbers captured by trawlers, who threw them overboard when turning out their nets. A strong easterly wind is said to have been blowing, and which was surmised to have driven them inshore. Mr. Gatcombe, writing in 'The Zoologist,' observes:—"I should say there were more than a thousand of them, and almost all of the most beautiful colours, some quite crimson, others more scarlet or pink, but all more or less beautifully banded or striped. I found, however, that these bands soon faded or disappeared altogether on being exposed to the light and air." The fishermen stated that within a few years these fish have swarmed to such an extent as to have become a perfect pest, and that in many instances the trawlers have actually been obliged to change their fishing-ground in order to be out of their way. Such immense numbers often got into the trawl that holes had to be cut in the net to allow the fish to escape, as it was found almost impossible to lift such a great bulk on board without carrying away their gear.

In July, 1844, about two hundred were taken in a trawl off Runnelstone, and others continued to be captured for three months in the neighbourhood, and along the coast near Land's End, a tract not much visited by the Mount's Bay fishing boats. In 1845 more were taken in the same locality; one at Falmouth in June, 1846; another at Bridgwater in May, 1850, which proved to be full of spawn; and many other solitary instances were subsequently recorded. In March, 1868, an immature example was washed ashore in White-sand Bay, Land's End, having a well-defined black spot at the upper part of the base of the caudal fin.

Since then I find the following instances recorded in 'The Zoologist':—One from the Scilly Isles in 1870; one from Torcross in 1875; a shoal of fifteen taken on the south-west coast of Cornwall, and exhibited in the Crystal Palace Aquarium. In 1879 a number were washed ashore on the Dorsetshire coast, on the sand-banks at Poole, during the night of March 30th; some of them contained spawn, while Mr. Penney considered that as food they were delicious, their flesh possessing a creamy whiteness and a delicate flavour. In April of the same year two were recorded from Exmouth; two in February from Torquay; in May one was picked up on the beach at Eastbourne, and another brought alive into Grimsby from the mouth of the Humber.

Mr. Dunn, of Mevagissey, in some interesting remarks upon the fishes of that locality, written in October, 1878, observes:—"Common here from the Start to the Lizard; these past five years they seem to be on the increase; thousands are yearly caught by Plymouth trawlers off Deadman headland, and thousands more are brought to land by our drift fishermen. In June and July last year I had over one hundred and fifty alive in my tanks at one time."

Last year Mr. Carrington recorded the capture of the Boar-fish from various parts of the south and south-east coast of England during the month of June. The localities noted were Weymouth, Bournemouth, Sheerness, Harwich, and Southend-on-Sea. This fish has also been captured in Scotland, as already observed. Edward also informs us of another example having been taken near Covie, in Banffshire, in August, 1862; while, in Ireland, Andrews obtained it in 1858 off Ventry Harbour.

This fish, the appearance of which in Britain was first noticed

in 1825, is now in abundance in limited tracts, while wanderers occasionally are taken around our coasts. It is remarkable that it may be banded or plain, and it has been suggested that this is due to having been in a dark locality. Space will not permit me at present to enter upon these questions, but I wish to draw attention to the specimens, as I trust others will examine them, and perhaps furnish your readers with their opinions on the changes of colour that take place, and the mode in which this is effected.

With regard to the Turbot, Mr. Jackson in 'Land and Water' for June 27th, has furnished some interesting remarks respecting the rapidity of growth in this species while resident in the tanks of the Southport Aquarium. Such observations demonstrate what may occur under certain conditions, but hardly militate against a different result under other circumstances. The size of a fish may increase in some situations at a more rapid rate than in others, and the dissimilarity in the growth of Turbots kept in the Southport Aquarium and of those in Ballinskelligs Bay, in Ireland, may be an instance in point.

That the conditions of fish-life in an aquarium are unnatural all must admit; the temperature of the water is not subject to such variations as occur in the open air, and this may be more conducive to the rapid growth of some forms than were they committed to the sea. Irrespective of this, food in the former situation is invariably plentiful while the proximity of dangerous foes is kept down to a minimum. It is stated that these captive fishes did not spawn, leading likewise to the supposition that their surroundings were not conducive to the natural continuation of the species. Some little Turbot, measuring about three inches across, were obtained from shrimpers, and placed in the Southport Aquarium. In two and a half years' time they attained to ten pounds each in weight; after two years more they further augmented to twenty pounds, or a yearly average increment of about four and a half pounds a fish.

If we turn to Lord Ducie's interesting investigations in Ballinskelligs Bay we perceive another result, as perhaps might be anticipated, due to all the surroundings being so different from what exist in the Southport Aquarium. Fishing annually in the same locality, Lord Ducie found that the yearly augmentation in the size of young Turbot appeared to have averaged one

pound, or rather less, each fish. That such a deduction may be fairly drawn from an analysis of the tables published in the 'Proceedings of the Zoological Society of London' for December, 1879, appears scarcely to admit of a doubt. Whether the Turbot had merely spawned in that locality for one season—whether they ceased breeding there for a few years—or whatever the cause may have been, a single brood, almost exclusively, appears to have been annually fallen in with at the same place, while the yearly increment in the size of the fish was, as stated, about one pound each.

The foregoing two sets of observations, giving such diverse conclusions, are exceedingly interesting, and I propose offering a few very brief remarks towards explaining how it appears to me that such different results were arrived at. Leaving out of consideration local circumstances, or an individual tendency in a fish to be larger or smaller than its relatives, every investigator must frequently have had his attention directed to how certain forms in particular districts attain to their largest proportions; likewise how—except perhaps in instances of occasional wanderers—on reaching near to the outer bounds of their geographical range, there may be observed a tendency to deterioration, or taking on a smaller size and inferior character. The fish has attained the limit of that region wherein it can reside with benefit to itself, and now it has to give place to another species more adapted to the locality.

This brings us to a consideration of what is the geographical distribution of the Turbot. Is it a fish restricted to the cold north, or does its range extend to the more temperate and genial south? It frequents the seas of Europe, extending southwards into the Mediterranean and the Adriatic. Low considered it rare in the Orkneys, while Yarrell remarked that its numbers increase on coming southwards. Plentiful in the German Ocean, it is not so common along the shores of Ireland, although taken all round the coast. In Holland the fishery begins, about the end of March, a few leagues to the south of Schevelingen; but as the warm weather approaches, the fish gradually advance northward, and fishing continues until the middle of August, when it terminates for the year.

It would seem probable that the Turbot, which extends its range as far south as the Mediterranean, and in the earlier months

of the year migrates northwards, would be more likely to grow with rapidity in an aquarium, living in luxury, having no occasion to employ much muscular exertion, enjoying a comparatively equable climate, and guarded from its foes, than would be the case were it a resident of the Irish Sea. This I would suggest explains how it occurred that such different results were arrived at by two equally accurate observers working in separate localities wherein the conditions of fish-life were totally diverse.

A GERMAN VIEW OF THE FAUNA OF IRELAND.

BY ERNST FRIEDEL.

(Concluded from p. 353.)

III. THE COAST.

The Lakes of Killarney and the tour by Macgillicuddy's Reeks to the Island of Valentia (famous as the first European starting-point of the transatlantic cable) offer to the travelling naturalist many an interesting glimpse of Irish animal-life along the south-west coast. At Killarney the lively imagination of the Irishman sees in the Islands (curiously shaped and twisted by erosion) all kinds of animal forms, which are then connected with the legendary hero-king, O'Donaghue—O'Donaghue's horse, his hen, his cow, &c. One island in the largest lake, Lough Leane, is called Rabbit Island, from its rabbits; another, on which, according to the guide, white mice may be found (!), goes by the name of Mouse Island. The profusion of plant-life which surrounds Lough Leane is astonishing; conspicuous amongst the flora is the great furze, *Ulex europæus*, which grows like a tree along the shore, forming perfect forests. The lakes are rich in fish, including numbers of Salmon and Trout, and permission to fish may be obtained for a small sum. But here again we must remember O'Donaghue; suddenly through the warm spring or summer night he rises from the waters, and the hoof of his white charger tramples the still lake into raging billows. Thus we find the Celts, like Germans, comparing the white-crested waves to the fluttering mane of a noble charger.*

* The more prosaic Frisians call the play of the waves "the calves-dance,"—meaning by "calves" the seals and dolphins.

The neighbourhood is celebrated for its Eagles. One nest, protected by an overhanging rock, has hitherto been inaccessible; but half-a-dozen other nests are plundered pretty regularly, in spite of danger to life and limb.* This takes place between the 15th June and the 1st July, when the little ones are large enough to feed themselves and to be sold to Englishmen, who will give five pounds or more for them. While I sat in my boat beneath the "Eagles' Rock" the old ones were flying backwards and forwards over it; at such times the poor people who let themselves down to the nests from above (and always carry firearms) hang, in danger of death, not daring to touch the young birds until the parents shall have gone; which they finally do, departing at a regular time in search of food—a mountain hare, a kid, or a young lamb. Kohl relates the following:—"We had a keeper with us who assured us he had joined in this Eagle-catching for the last twenty years; during that time the same pair of Eagles had always built there; the difference between them was easily distinguished, and had a new pair taken possession of the nest it would have been discovered at once, as they were watched far and near all through the year. This pair was thought to be the oldest in the neighbourhood, for the feathers of both birds were very faded. After their young ones had been taken from them they would fly round the nest for days, crying day and night, and apparently seeking their young. The keeper said it sometimes happened that one of the captive Eagles regained its liberty and returned to the mountains; but these tame Eagles were always attacked and killed by their wild relations. From one to two young birds are found in the nest; the affection of the Eagle for its young is the more striking when compared with the manner in which other birds will forsake their broods on the slightest disturbance."

The Goats of this region remain out, running wild on the mountains, all through the year; some are killed over precipices, or climb beyond possibility of return, while many become the prey of the Fox and the Eagle.

* In regard to the number of Eagles' nests at Killarney, we think the author must have been misinformed. The guides cannot be depended upon for information of this kind. Ten years ago, when visiting Killarney, we could not discover more than one pair of Eagles in the district, and, considering the persecution which attends all the birds of prey, it is hardly likely that the number of Eagles has increased much in such an oft-visited locality.—ED.

On the coasts north of Connemara the little short-horned cattle of the country are driven into the mountains, but only stay there during the summer season. Even at the present day the cow plays an important part in the dowry of a daughter of the country, representing coin to a certain extent, as with the ancient Romans, whose money, *pecunia*, was derived from *pecus*, cattle. The Red-deer is still found among the mountains round Killarney and in the wild parts of Connaught, such as Erris and Connemara, though it is certainly disappearing from Ireland. Such Irish Stags as I saw were little weak animals; the Irish Wild Boar is also said to have decreased in size.* I know of no other reason for this degeneration than the breeding in-and-in within the restricted area of an island, and the selection for slaughter of the largest and finest animals. If the remaining representatives of the Irish *Cervus elephas* are not resuscitated by the importation of new blood, their race will die out, sooner or later, without the assistance of the bullet. Climbing Mangerton Mountain, I was offered a piece of an antler as a great curiosity, the enormous price demanded for it being some indication of the animal's rarity, even at Killarney. Ireland was formerly celebrated for its fine Red-deer. Venerable Bede, who died in the year 735, refers to Ireland (Eccles. Hist. lib. 1, cap. 1) as "*Insulam cervorum venatu insignem*." According to Payne ('Brief Description of Ireland,' 1589), there might be bought there, "a fat pigge, one pound of butter, or two gallons of new milk for a penny; a reade-deare without the skinné for 2s. 6d.; a fat beefe for 13s. 4d.; a fat mutton for 18d." Camden also, in his 'Britannia,' states that the County Mayo was rich in cattle, red-deer, hawks, and honey; and that the mountains about Lough Esk (Donegal) were overrun with deer. Nor was the race degenerated in the Bronze Age, as proved by the giant Red-deer (not *Cervus megaceros*) found in the bogs, especially around the lake-dwellings in Ballinderry Lake, County Westmeath; at that time too frequent breeding in-and-in was evidently not prevalent.

In Scotland, deer are also becoming scarcer, and diminishing in size. From England they have almost entirely disappeared; at present they are only found in a wild state in Martindale,

* The author writes under the impression that the wild boar still exists in Ireland, but it has long been extinct throughout the British Islands.—ED.

on the west side of Ulleswater.* The deer of the Hebrides are even smaller than those of Scotland. In Sweden, the Red-deer is rare, and not so large as in North Germany. The stag of Norway is smaller again than his Scandinavian brother. The stags of Corsica and Sardinia are also described as of diminutive size.

O'Flaherty, in his 'History of H'Iar-Connaught,' 1684 (p. 121), writes:—"Next Mam-en are the mountains of Corcoga, on the confines of Ballynahynsy, Rosse, and Moycullin countreys, where the fat deere is frequently hunted; whereof no high mountain in the barony of Ballynahynsy, or half barony of Ross, is destitute." In old chronicles, the Irish stag is described as "very large, fleet, and fierce." Dr. Thos. Molyneux, a friend of O'Flaherty, remarked, in a paper on the large antlers frequently found buried in Ireland, that, in his day, the Red-deer was becoming scarcer than had ever yet been known, and expressed the opinion that unless care were taken, its extinction was to be feared. He alludes to a certain plague or epidemic which had decimated the Reindeer in Lapland. Hardiman, the editor of O'Flaherty's work, suggests (1846) that similar epidemics may also have diminished the Irish deer, and mentions an old man still living who had seen Red-deer abounding in the Barony of Ross, in H'Iar-Connaught, in his younger days; they grazed with the black cattle on the mountains. One stag had so entangled his antlers in a thicket that, being held a prisoner, he perished there. The mountains which for two miles border the lakes of Kíllarney, under the name of Gléna, are now their chief resort. Here a stag is often driven into the water, and captured and bound with great rejoicing; after which he is brought out in triumph, marked with a particular sign, and once more set at liberty, to the delight of the assembled multitude.

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In Irish legends the Doe, and especially the White Doe, plays the same favoured, almost sacred, part that she does amongst Teutonic races. An equivalent for the lost Red-deer of Ireland is now being sought in the more tractable Fallow-deer, which there becomes a tame and park-loving animal; and the flesh of

* Can any correspondent inform us whether the Red-deer is still found in Martindale Forest, and if so in what numbers? The author has omitted to mention the Red-deer of Devon and Somerset.—Ed.

which, to us Germans, has a softer and less gamey flavour. Thompson possessed an antler of the Fallow-deer which had been found deep in a peat-bog near Glenravel, Co. Antrim; he does not, however, venture to conclude from this that the Fallow-deer had ever been a native of Ireland, but speaks rather of Greece, where it still occurs in a wild state. Blasius considers that the countries bordering the Mediterranean may be regarded as the original home of *Cervus dama*. According to Bonaparte, it still abounds in Sardinia and Spain. Cuvier received a wild Fallow-deer from the forests south of Tunis. Belon found it on the Greek Islands.*

Cervus dama may be seen in the parks of Ireland in herds of three hundred or more; the sick and wounded, as has often been remarked, are driven away and killed by the stronger stags. Damp winters often cause great mortality.

An antler of the Moose, *Cervus alces*, has been found in the peat near Stewartstown, Co. Tyrone, a discovery all the more remarkable from the entire absence of any historical notice of the existence of this animal in either England or Scotland.†

The Roe, which still exists in England and Scotland, is absent from Ireland, nor have I heard of any fossil or subfossil remains of *Cervus capreolus* being discovered there.

To continue the list of terrestrial mammals, no trace of the Beaver has yet appeared in Ireland, in spite of the abundance of inland waters. It was formerly hunted on the banks of the Teivi, in Cardiganshire, for the sake of its fur, but became extinct between A.D. 1100 and 1200.

* The following, from Kloden's 'Fossils of Mark Brandenburg' (Berlin, 1834, p. 83), is worthy of notice:—"I am well aware that the Fallow-deer is not generally regarded as indigenous to Germany, and that it is said to have been first introduced into Brandenburg by the Elector Frederick William the Great. It does not, however, follow that it might not have existed there at a much earlier date; fossil remains being found on the Somme, as well as in Sweden and some parts of Germany, without taking into account the bone-heaps of Cette, Antibes, &c., in which Fallow-deer's bones frequently occur. I have in my possession a large and well-preserved portion of an antler from the neighbourhood of Potsdam, that has evidently lain long in the ground. It was not found in peat, but in a layer of loam or marl."

† Prof. Boyd Dawkins ('Cave Hunting,' p. 137), writes:—"The Moose (*Cervus alces*) and the Reindeer are far more abundant in the north than in the south of Britain; their remains have been discovered in the neighbourhood of London, those of both animals at Walthamstow, and those of the latter at Crossness, in Kent, on the banks of the Thames."

Subfossil remains of the Brown Bear have been found in Ireland, but I have been unable to discover any historical notice of the former existence of this species. In 1859 remains of *Ursus arctos*, *Ursus spelæus*, of the Wild Horse, Reindeer, and Mammoth were discovered by Mr. Brennan in a cave at Shandon, near Dungarvon, Waterford. (Journ. Royal Dublin Soc. ii., pp. 344—352; and Journ. Geol. Soc. Dublin, x. p. 147). The Mammoth has also been found in Ireland, at Whitechurch, near Dungarvon, and at Maghery, near Belturbet; the Wild Horse in many places. As for cattle, *Bos taurus*, Linn., has been frequently found.* In the Proceedings of the Royal Irish Acad., Jan., 1839, a race of cattle from the peat is characterised by the convexity of the forehead and its great length, and the shortness and downward inclination of the horns. I should imagine the animal to be *Bos longifrons*, from which are descended the old Celtic cattle of the Welsh and Scotch mountains, and the old dark-coloured cattle of Ireland. The larger breed,† now represented by the Chillingham oxen and descended from the large *Bos urus*, appeared in England at the time of the Anglo-Saxon invasion (5th century), and supplanted the British-Welsh or Romano-Celtic *Longifrons*, but has not been discovered in Ireland. The Irish caves and bogs, however, have never been thoroughly explored, nor have their osteological contents been by any means exhausted.

While ascending Mangerton Mountain, near Killarney, I had the pleasure of observing, for the first time, the Irish Hare alive. I made the ascent on the 10th of June, 1874, accompanied by John O'Donaghue, a guide well known to Killarney tourists under the name of "Happy Jack," who may be recommended especially to German zoologists. He speaks fairly good English, as well as Irish, and knows the resorts of the game, as well as the localities for rare plants. Up to a recent date Mangerton Mountain was looked on as the highest mountain in Ireland, but, according to the latest measurements, Carrantual, which lies on the north-west coast, is higher by 658 feet, the altitude of the former being 2756, of the latter 3414 feet. Four miles above Muckcross we came upon a lake, the Devil's Punchbowl; there are no fish in its icy-cold waters, though I noticed two small

* *Bos longifrons*, Owen.—Ed.

† *Bos primigenius*, Bojanus.—Ed.

crustacea (*Krebsthier*e). Beyond this the mountain is quite bare, nothing but lichens visible on the rocks. Amongst the highest vegetation we found our old friend the Hare comfortably established, not expecting to be disturbed by visitors in this lonely retreat. On the edge of a rock lay a sheep, torn by an Eagle, a warning to friend Hare, whose flesh the king of the air prefers to that of any other animal. A German eye at once detected the difference in the creature; the ears are shorter than those of our Hare, *Lepus vulgaris*, L. (= *Lepus europæus*, Pallas), the body less rounded, while the conspicuous white tail and red-brown colour of the back [owing to the absence of the black hairs so noticeable in our species] serve still further to distinguish them. When startled these hares did not run like ours, *ventre-à-terre*, but leapt or bounded away, in this respect resembling rabbits. How does Bell, the first to establish *Lepus hibernicus*, characterise it in his 'British Quadrupeds'? We cannot but be struck with the fact that such a remarkable animal should have remained unnoticed by scientific men until so late as the year 1833 (Thompson, vol. iv., p. 19). Jenyns mentions it, in his 'Manual of British Vertebrate Animals,' as a variety of *Lepus timidus*, with the observation that it is almost deserving of place as a separate species. Bell, however, makes the strange observation "It is certainly a very remarkable circumstance that it should have remained unnoticed until so late a period, and can only be accounted for by the fact that it is the only Hare found in Ireland, and that therefore the opportunity of comparison did not frequently occur." I believe the true reason lies chiefly in the native indolence respecting the fauna of the country.†

* * * * *

My friend, Prof. Ed. v. Martens, writes me as follows from Berlin, Aug. 6th, 1868:—"There is much confusion and disagreement amongst various authorities as to the European kinds of Hare. It is certain that Linnæus did not distinguish so carefully, and described all European Hares as *timidus*. The species which is now found in Sweden, especially in Central Sweden, was

† A passage founded in error owing to a misquotation, probably furnished second-hand, is here omitted as being likely to confuse the reader. It has reference to the condition of the young of the Hare and Rabbit when first born, and the writer of the article, after stating in regard to the Hare what applies to the Rabbit, and *vice versa*, proceeds to argue from these false premises.—Ed.

formerly described by Nilsson as *Lepus borealis*; it is characterised by some peculiarities of colour, and is, in the strict sense, the *L. timidus* of Linnæus, while the Central-European (including the German) form is known as *L. europæus*. *L. hibernicus* of Ireland is again different, smaller and darker in colour, resembling *L. variabilis*, but not turning white in winter.*

Some writers consider *Lepus borealis-timidus*, Linn., and *Lepus hibernicus* as varieties of *L. variabilis*, Pallas, which latter species would then include the northern forms and the Alpine Hare. Professor Peters, in working out the mammals of the German North-Polar Expedition, has pointed out that *L. glacialis* of Greenland differs in the form of the skull from all European Hares. In cold winters the Irish Hare becomes lighter coloured, sometimes turning quite white. In the Belfast Museum is an almost snow-white specimen, whiter even than the Alpine Hare; but it must be borne in mind that this may be only an accidental albino specimen. The number of young of the Irish Hare is usually three. It swims well, and will cross the water, even entering the sea, in search of a better feeding place. Many attempts have been made to introduce *Lepus vulgaris* into Ireland, but up to the present time unsuccessfully;† this may possibly be owing to the quarrelsome nature of the native Hares, although the latter are the weaker of the two. On the whole, *Lepus hibernicus* appears to be the North-European Hare that came in the post-glacial period, but which, owing to the separation of the island from the mainland and the change in climate, has gradually formed a remarkably constant variety.‡

To study the Irish sea-birds and the rich fauna of the Atlantic, there is no better place than Galway and the seaside villages in Galway Bay, with the neighbouring Isle of Arran. Here we find an original unmixed population usually speaking Irish, and here we may study their peculiar customs, their widespread superstitions regarding animals, and original views of animal life and culture, which are so primitive that we ask involuntarily if this can still be civilized Europe.

Innumerable flocks of Gulls and other sea and shore birds breed on the islands and on the coast; their eggs are regularly taken, and their flesh is eaten on fast-days, the church reckoning

* This is a mistake, for both pied and white hares are well known in Ireland.—Ed.

† We should be obliged for statistics on this point.—Ed.

‡ But it is identical with the Scotch Hare.—Ed.

these creatures amongst "sea-food." The Common Seal (*Phoca vitulina*), and the Grey Seal (*Halichoerus gryphus*) are shot, or killed with cudgels. There are endless legends relating to these animals. One family, the Macnamaras, are said to be descended from a "Cu-mara" (= Seal). Salmon and Trout are still caught abundantly, though not quite in such numbers as formerly. In a holy well near an ancient ruined church there is a sacred Trout which the sick people come to visit. If they find it swimming upon its back they will die; if not, recovery follows. Another spring contains two of these sacred Trout, of which it is said that a heretic soldier intending to cook them, they sprang out of the gridiron and jumped back into the water. From that time, so the legend says, they have borne traces of the hot iron on their backs! Maurice O'Connor, the Irish Orpheus, is said to have made not only fishes and crabs, but even snails and mussels dance after his music.

In concluding these remarks I need only observe that my object will have been attained should they serve to induce other German naturalists to study, in Ireland, a country, a people, and a fauna so well worthy of their attention.

OCCASIONAL NOTES.

THE FERRET AND THE POLECAT.—It is, I believe, generally admitted now that the Ferret is nothing more than a domestic variety of the Polecat; yet, with the exception of the late Dr. Gray (Proc. Zool. Soc. 1865, p. 110), all the writers, from Buffon downwards, whose books I have had an opportunity of consulting, make the two specifically distinct. Cuvier allowed that the Ferret was perhaps only a variety. Bewick and Bingley both mention a cross-breed between the two animals as an every-day fact that required no proof. Bell (Brit. Quad., 1st ed., p. 162) says of this that he "can obtain no authentic verification," and in the second edition, p. 207, "they are said to breed freely with one another." My friend Mr. J. S. B. Borough has bred several litters between a wild-caught male Polecat and a female Ferret, the latter being, I believe in each instance, of the brown or Polecat variety. He has further bred between the Polecat male and hybrid female. I use the word "hybrid" for convenience sake, but if the Ferret and Polecat are specifically identical the term would not, I suppose, be strictly correct. I have this year, from animals bred and given by him, bred between a hybrid male and three-fourths Polecat female—i. e. the

offspring of a male Polecat and female hybrid. The female animal in question has a coat which is, I think, undistinguishable from that of a pure Polecat, the hybrid specimens being a little lighter and yellower than she is, though far darker than the comparatively speaking yellow and rusty-looking "Polecat-ferrets." The contrast between the black and white on the face is as well marked as in a pure Polecat; her nose is, however, sharp and the tail tapering like an ordinary Ferret's. She is a small animal—*i. e.*, would be considered rather small for a Ferret. After a gestation of six weeks she produced (May 22nd) five young, one of which opened its eyes when four weeks old, the last of the litter being six days later. This period of gestation agrees with that of Ferrets, and would appear from Lilljeborg (who quotes Nilsson and Melchior), Blasius, and Giebel, to differ from that of the Polecat, which is stated by them to be two months or nine weeks. Four of my young ones are a shade lighter colour than the remaining one, which appears to be exactly of the colour and markings of a Polecat, and while the four are up to the present time tolerably well behaved, the latter has already developed the true temper of a Polecat. I believe Mr. Borough has worked some of his hybrids, but those which I have cannot be worked. My hybrid males breed freely with common Ferrets.—ALFRED HENEAGE COCKS (Great Marlow, Bucks).

RED-LEGGED PARTRIDGE IN GUERNSEY.—In reference to the note on the Red-legged Partridge in Guernsey in the June number of 'The Zoologist' (p. 257), I write a line to say that I omitted this bird from my 'Birds of Guernsey,' as I always considered both it and the common Grey Partridge introduced birds in the Channel Islands, especially within my district; and that I believe the Red-leg, even as an introduced species, is quite extinct in Guernsey, though I understand a few still exist in Jersey, at all events as occasional visitants from the French coast. I am well aware that in Guernsey the Red-leg was frequently called the "Guernsey Partridge," and I have no doubt it was the Partridge of the Guernsey market; and probably in olden times, when a considerable amount of game was preserved both in Guernsey and Herm, it may have been the Partridge of those islands, though it is difficult to say which was the Partridge alluded to in the passages I quote below. I do not think the Red-leg exists at present even as an inmate of Mr. Maxwell's preserve in Herm—he only preserving, as far as I remember, Pheasants and Grey Partridges. If the Red-leg ever visits any of the islands included in the 'Birds of Guernsey' as a straggler it would no doubt be Alderney, the nearest to the French coast; but I have never seen one there, nor did any of the shooters there tell me of their having shot any. As to the existence of Partridges and Pheasants, as well as other game and fish, in Guernsey and Herm, it may be interesting to quote the following passage from the instructions given by George Lord

Carew, of Clapton, Master of the Ordnance within the Realm of England, Governor and Captain-General of the Isles of Guernsey, Alderney, and Sark, to Amias de Carteret, Esquire, Bailiff of Guernsey, his Lieutenant-Governor, dated at Castle Cornet, the 9th day of August, 1610:—

“I do pray you to oversee the keeper of the island of Erme (Herm) that no wilful or negligent waste be made of the Deer, Pheasants, or Conies there. And of the Deer and Pheasants, in your discretion, kill what you please, being confident you will endeavour their preservation and increase as much as myself. For the provision of your table I do give you out of Erme (for so long as you are my lieutenant) after the rate of 200 couples of conies per annum. I do likewise give you, for the provision of your own table, Carps without any certain limitation, praying you to favour the pond, as that the increase be not decayed. I do also desire you to be careful that the breed of Swans brought to the island by Sir Thomas Leighton, and cherished by him, may not be destroyed. Of these yearly you may take for your own use as many as you please, and unto John de Quetteville what you may spare I pray you to bestow upon him; your moderation in both I am sure will be such as the game will be maintained. My predecessors, the Governors, have ever accustomed to be careful that none in the country should keep Greyhounds to destroy the Hares, nor shoot at fowl, without their license, which laudable custom I pray you observe, wherein I do not wish to restrain any man of quality, but the baser people whose time spent in labour is their proper calling. And in like manner not to permit any man to take Partridges, of which game the island is almost destitute.”

In a note to this, the author of the ‘Chronicles of Castle Cornet,’ from which I have copied the above, says:—“Deer, Pheasants, Swans, and Partridges have long since disappeared from Guernsey and Herm. Hares have been reintroduced into Guernsey within a few years, but they were soon destroyed.” From this note it would appear that Mr. Ferdinand Brock Tupper, the author of the above-mentioned ‘Chronicles,’ agrees very much with me, and considers Deer, Hares, Pheasants, Swans, and Partridges as all being introduced species, and having since become extinct; but he does not state whether the Partridges mentioned were the so-called “Guernsey Partridge,” *i.e.*, the Red-leg, or the common Grey Partridge. As I am writing on the Channel Islands, it may be interesting to add, as to the Carp mentioned above, that Heyling, in his account of Guernsey as it appeared in 1629, says, amongst other things:—“A lake on the north-west part of it near unto the sea of about a mile or more in compasse, exceeding well stored with Carps, the best that mortal eye beheld for taste and bignesse.” This island is now nearly dry, especially in summer; but there are still a good many pools of water there, and some large reed-beds, the home of the Reed Warbler. Further on, in the ‘Chronicles,’ Mr. Tupper describes the island of Herm in these words:—“Herm was long kept as a game

preserve for the Governors, who had also the exclusive right of shooting in the Clos du Valle. Thus on the 8th of September, 1716, we find the Royal Court authorizing the King's receiver, Mr. Peter Martin, to hold an inquest for the purpose of discovering the persons who had killed Stags, Roebucks, and Pheasants on the island of Herm, and also who had been sporting in the Clos du Valle, contrary to the ordinance. We have often heard from an old gentleman, now deceased, who remembered when the two last deer on Herm were killed, about the year 1773, that the stags were in the habit of swimming from thence to the Vale, a distance of rather less than two miles at low water, to feed, and then returning, always taking the proper tide each way. In the year 1737 the islands of Herm, Jethou, and Lihou, with the pond of the Grande Mare, near Vazon Bay, now marshy ground, which pond contained the wonderful Carp described by Heylin, were leased to individuals in perpetuity; but while the Governors resided at Castle Cornet they were enabled to diversify the scenes of their lonely residence by an occasional excursion to Herm to shoot Deer, Pheasants, or Rabbits; or to fish at the Grande Mare; or to shoot over the Clos du Valle, Guernsey, containing a great many Hares at that period and long afterwards." I have often been shown the place the deer used to swim over from the Vale to Herm and back. A wild Devon or Somerset stag would think nothing of the distance, even at high water, but the very hot tides might bother him a little at times.—CECIL SMITH (Bishop's Lydeard, Taunton).

THE COLOUR OF 'CUCKOOS' EGGS.—May I be allowed to call the attention of all who were interested in the controversy "On the colouring of Cuckoos' eggs"—which occurred in the pages of 'The Zoologist' and other Natural-History publications, more especially in the years 1868 and 1873—to the valuable testimony given on this subject in the August number (p. 362) by Mr. Seebohm? It was asserted by those who were opposed to Dr. Baldamus's theory that nobody had ever seen a Cuckoo's egg bearing the least approach to the blue eggs of the Hedgesparrow and Redstart (Zool. S.S. p. 3529, &c.). Mr. Rowley, who examined the question in the most fair and impartial manner, expressed himself unconvinced, but added, "a blue and a green egg of *C. canorus*, well authenticated, would do much to convert me" (p. 3471); and even Professor Newton (who was inclined from the first to favour the new theory) remarked that the fact which told most against it was that, "so far as he was aware, no one had ever found in the nest of a Hedgesparrow a Cuckoo's egg which is similar to that of the Hedgesparrow" (p. 3473). Some evidence, indeed, there was of blue Cuckoo's eggs, but it was not considered sufficiently definite and authentic. Prof. Newton had himself quoted Salerne as an authority 100 years ago for eggs so coloured (p. 3506). The collections of Dr. Baldamus (pp. 1151, 1154, 1155) and Dr. Rey (p. 3435) professed to contain

such blue eggs. Mr. Cordeaux, in his "Ornithological Notes from Lincolnshire" (p. 1285), mentions an egg which was described to him as "partly resembling that of the Hedgesparrow"; and I was able to adduce the testimony of a gentleman, who assured me he had seen such blue Cuckoo's eggs in the nest of the Hedgesparrow (p. 3516). Still there was wanting the positive testimony of some acknowledged authority as an ornithologist—of one who had personal ocular proof to adduce. My own bird-nesting days are long since over, but for seven long years I have been patiently waiting, trusting that eventually such convincing evidence ~~would be forth-~~coming. This, I maintain, we now have in the communication of Mr. Seebohm: nothing can be more satisfactory than the evidence he gives, and no one could desire a more unimpeachable witness; indeed I hail the testimony of the author of "Notes on the Birds of the Lower Petchora" ('Ibis,' 1876), and "Contributions to the Ornithology of Siberia" ('Ibis,' 1878), as most satisfactory and conclusive, and leaving nothing on this point to be desired. Moreover, I hail, not only the evidence, but the opinion of Mr. Seebohm on the point, as exactly corroborative of the view I ventured to express in October, 1873 (pp. 3723-3727). Since that last communication of mine to 'The Zoologist' on the subject, the interval which has elapsed has only strengthened my then expressed view, which now almost amounts to a conviction, and which exactly coincides with that now put forth by Mr. Seebohm, who has so much greater pretensions to speak with authority than I have.—ALFRED CHARLES SMITH (Yatesbury Rectory, Calne).

BLUE EGGS OF THE CUCKOO.—As there appears a note on this subject in the last number of 'The Zoologist,' by Mr. Seebohm, may I be allowed to add that in my copy of 'Ornithologie Provençale,' by Polydore Roux, there are two eggs of the grey or common Cuckoo figured, one of which is of the ordinary colour, and the other of an uniform light blue, similar to that of the Hedgesparrow and common Redstart.—JOHN GATCOMBE (55, Durnford Street, Stonehouse, Plymouth).

NOTE ON THE CUCKOO.—Last year a pair of Water Wagtails built in the trellis-work of my garden wall, about five feet from the ground, close to a door where people were constantly passing. A Cuckoo deposited its egg in the nest, which in due time was hatched and reared. We used to see the Cuckoo and Wagtails constantly; they were very amusing to watch. I noted that three weeks was the time that the young Cuckoo was fed by the Wagtails, as by the end of that time they had another brood of their own to attend to. I had noticed that only one Wagtail had been for some time in attendance. Curiously enough, this year precisely the same performance has been gone through. The Wagtails repaired

their old nest, and a Cuckoo deposited its egg in it. Mrs. Kelly saw the old Cuckoo leave the nest just after she had left the egg; and the bird has just been safely reared, and the Wagtails sitting again. No doubt they were the same Wagtails and the same Cuckoo, or possibly the young Cuckoo that was reared last year. I shall not destroy the nest, and shall be anxious to see if the same thing takes place next year.—REGINALD KELLY (Lifton, Devon). [Communicated by Mr. Gatcombe.]

TENACITY OF LIFE IN YOUNG HOUSE MARTINS.—The following curious instance of tenacity of life, which came under his own observation, was recently related to me by my friend Mr. F. Kitton. On the 1st of July, a bricklayer, in cleaning the gutter round Mr. Kitton's house, knocked down a Martin's nest, which fell to the ground with its contents, three very young birds and a nest-egg. The remains of the nest and young birds were swept away with the rubbish from the gutter and thrown into the bin, where they remained till Sunday morning, when the nestlings were heard chirping by Mr. Kitton's children, and taken out. The children then fed them with sopped bread, which they took readily, but died on the following morning. Mr. Kitton estimates that these young birds lived entirely without food and deprived of the warmth of the nest and parent bird for sixty-two hours, and that from the time of their violent ejection from their nest to their death a period of eighty-six hours intervened. Shortly before Mr. Kitton mentioned this incident to me I had been reading Prof. Newton's remarks, in the last part of his new edition of Yarrell's 'British Birds' (p. 352 and foot-note), upon the cause of the death of late broods of Martins, so often found in their deserted nests, and it struck me that if this tenacity of life in the young of these birds is the rule it would account for much that has heretofore been matter of surprise to me. There can be no doubt that Prof. Newton's remarks apply to most of the insectivorous birds; but do the Swallows form an exception to the rule? I never attempted to rear any young birds, but on one occasion the nest of a Blackcap Warbler, which was placed in a climbing rose in my garden and contained young ones, becoming displaced by the wind, I was astonished in how short a time the young ones perished. Now I imagine that most of our insect-feeding birds would be able to obtain a supply of food for their young ones, under fences and from other sheltered localities, on many a day when the *Hirundinidæ*, which take their food on the wing in open spaces, would have the greatest difficulty in securing the supply needful for five hungry mouths. Most of us can call to mind any number of such occasions during the past two summers, when the poor Martins have been seen hawking in the cold and wet, looking sadly uncomfortable and out of place. It must also be borne in mind that the young birds would at this time probably be deprived of the warmth of the parent bird, as it would require the united

efforts of both birds to endeavour to obtain food for the brood. They would thus be without, or scantily supplied with, the two great necessities at that tender age—food and warmth. If, therefore, the young Martin were as tender as the young Blackcap, would it not be in great danger of perishing much more frequently than it even now does in this fickle climate? Even young birds which can endure loss of food and warmth for sixty-two hours must at last succumb to such unnatural conditions; and as the season advances and food grows scarcer, whilst the temperature at the same time is falling lower and lower, it does not appear wonderful that the late broods of Martins should perish; and then, but perhaps not till then, the sorrowing old birds should take their departure to warmer climes, leaving their callow brood dead in the nest. May it not be, therefore, that these birds perish, not because their constitution is more tender than that of other birds, but notwithstanding their powers of endurance being exceptionally great?—THOMAS SOUTHWELL (Norwich).

CALL-NOTE OF THE YOUNG GUILLEMOT AND RAZORBILL.—Will any one kindly inform me if the call-notes of the *young* in these species are distinguishable? I am led to ask the question from a paragraph of the late Dr. Saxby, in his 'Birds of Shetland,' where, writing of the Razorbill, he says:—"The cry of the young bird is very peculiar, something between a chirp and a whistle, but more resembling the latter." At the head of his chapter he also gives "Willock" as the local name of this species in Shetland. It occurs to me that this name is descriptive of the cry of the young bird. The cry of the young Guillemot, as I have heard it at Flamborough (and which is peculiar to the young only) may very well be represented by the same word "willock," and I have heard fishermen use it in imitating the note. Macgillivray, in his 'British Birds' (vol. v. p. 318), gives "Willock" as a local name of the Common Guillemot; and on the east coast in some districts the name seems common to both species. At Flamborough the Guillemot is universally called the "scout,"—"Flamborough scouts,"—the name by which they are known both on the Yorkshire and Lincolnshire coasts. When heard at any distance the cry of the young Guillemot has a certain resemblance to some high notes of the *Merulida*, and it may very well be called a clear whistle quickly repeated, having a resemblance to the words "willock—willock." When at Flamborough early in August, I repeatedly heard this peculiar call of the young, both from the cliffs and on the sea; and, in the latter case, captured young downy Guillemots, so as to be certain of the species. Although there were countless numbers of Guillemots along the coast, I did not see a single Razorbill; they appear to have left with their young about the last week in July. I got a good series of eggs, taken there in the spring, and was told they had bred in large numbers. However, on August 6th, not

an old or young bird could be seen on or near the cliffs, so that in this case the whistling must have proceeded from the Guillemot, and I am certain that this was the case. It appears, therefore, from the paragraph from Saxby, as well as the local name common to both, that the cries of the young fledglings are alike. Should this be the case it is rather remarkable, seeing the notes of the old birds in the two species are so very dissimilar.—JOHN CORDEAUX (Great Cotes, Ulceby).

STARLINGS VERSUS SKY LARKS.—Some time since I directed attention to the fact that Sky Larks were diminishing in numbers in this immediate neighbourhood, and I blamed the Starlings for causing this result (Zool. 1878, p. 427). I have seen no reason to change my opinion as then expressed. A few days ago I cut the following from the 'Dumfries Courier':—"It is said that the Lark has within the last two or three years been rapidly disappearing from several districts in Scotland, where it used to be found in great numbers in spring and early summer. Districts in the counties of Perth and Forfar are specially referred to. The disappearance of the Lark is believed to be due to the prodigious increase in the numbers of the Starling, which swarm in droves and plunder the nests." On the 22nd July, in the 'Kirkcudbrightshire Advertiser,' I met with the subjoined statement relative to the western portion of Kirkcudbrightshire, but which would apply equally well to the eastern side of the county:—"The Lark is unfortunately rapidly vanishing from this district, and I fear the Starling must be credited with the marked scarcity of this our sweetest songster. The habits of the Starling when rearing young lead them to grass-fields, and just to places most affected by the Lark when nesting; and although the writer has never caught the Starling *flagrante delicto*, yet he has more than once come on the nest of a Lark containing broken eggs, and all round Starlings were poking about in a suggestive manner among the grass." I do not mean to say that, in Natural History matters, newspapers are to be taken as reliable informants, but such paragraphs as the above show that the scarcity of Sky Larks, and the connection (real or fancied) of the Starling with their disappearance, is attracting attention. Probably some one resident in the districts named above may communicate the result of his observations to the pages of 'The Zoologist.'—ROBERT SERVICE (Maxwelltown, Dumfries, N.B.)

CROSSBILL BREEDING NEAR YORK.—Although the Crossbill, as a rule, retires to northern latitudes to breed, still there are several instances on record of its remaining to nest in England. Every authentic instance should be recorded, for in consequence of its breeding so early in spring its nest is seldom found. My friend Mr. Widdas found this bird breeding in a fir plantation at Stockton-on-Forest, near York. He and another friend were rambling through the plantation very early in spring, when they saw,

as they thought, a Greenfinch's nest built in a fir tree. Immediately he began to ascend the tree, out flew a Crossbill. The nest, which was built half-way up the tree where a branch joined the trunk, was larger and flatter than that of the Greenfinch. It consisted of a foundation of small twigs, lined with leaves, dried grass, and hair. It contained four eggs, two of which are now in my possession.—WALTER RAINE (Leeds).

NESTING OF MONTAGU'S HARRIER.—The nest described by Mr. Raine (p. 362) is formed of very different materials from the one found on our downs by Mr. Howard Saunders in May, 1875, and which was described in a note on the habits and change of plumage of one of the young I had in confinement for six or seven weeks (Zool. 4672). Mr. Raine says that the nest, according to his informant, Mr. Widdas, was "two feet above the ground," whereas the nest found here was on the ground. It was, he remarks, "composed chiefly of rushes and other aquatic plants"; other materials used were cow-hair, moss, grass, &c. Now, with the exception of grass, the nest discovered here had none of these materials, being chiefly built of fern-stalks and heath. The egg is said to differ slightly from others in Mr. Raine's collection, which leads me to think and suggest that possibly the nest found by Mr. Raine's informant in 1875 may have been that of the Common Harrier, whose nest Macgillivray says is raised "a little from the ground"; and, according to Morris, the nest of the Hen Harrier "is of considerable height, sometimes as much as a foot and a half," and is composed of sticks, sedge, reeds, flags, &c. Though Mr. Raine's new specimen differs slightly from other eggs in his collection, he does not say whether it is in size, shape, colour, or texture.—HENRY HADFIELD (Ventnor, Isle of Wight).

GOLDEN-EYE DUCK AND GREEN SANDPIPER IN NORFOLK IN JULY.—On July 31st I bought an old female Golden-eye Duck in Norwich fish-market. The poor thing had been undoubtedly killed in Norfolk, though a salesman could not tell me where. As is well known, the presence of such birds in the summer is not always an indication that they are breeding. Every Norfolk naturalist must have seen the Green Sandpiper occasionally in July, yet the fact of their breeding has never been proved, though often suspected. During the greater part of the present summer a pair have frequented a pool at Cawston, but their nest, though searched for, has not been found, and my own conviction is that they have not bred there.—J. H. GURNEY, JUN. (Northrepps, Norwich).

HAWFINCH BREEDING NEAR LEEDS.—I have to record the discovery of a nest of the Hawfinch, *Coccothraustes vulgaris*, between Coble Hall and Roundhay, during the spring of 1878. It was placed high up in a holly tree, and reminded one of the Ring Dove's flat platform of a nest, consisting of a foundation of small sticks and twigs, lined with roots, hay, &c. It

contained five eggs, easily identified as those of the Hawfinch. This is the only instance known to me of this species breeding in the neighbourhood. During the same year a female Hawfinch was caught in a garden at Newlay, having gorged itself with berries to such an extent as to prevent its escape. Another specimen was shot last December near Otley.—WALTER RAINE (Leeds).

VARIETY OF THE SPOTTED FLYCATCHER'S EGGS.—In June last I met with a nest of curiously coloured eggs of the Spotted Flycatcher, a notice of which may perhaps be worth recording. The nest was placed upon one of the lateral branches of a pear tree trained against a wall, and when discovered, on June 13th, it contained two eggs. What I believe was the first laid one was of the usual type, but the other was very faintly spotted, and of the same ground colour as the former. The next day a third egg was deposited of a very pale blue, with not the faintest trace of a spot. The next egg laid was of the same colour as the third, and the fifth and last was almost white, and the shell was somewhat constricted near the small end. On June 18th I transferred nest and eggs to my collection. When blowing the eggs I noticed that the first and second had some blood-streaks, and in the third and fourth the yolk had settled down to one side; in the fifth there was apparently nothing but yolk. Does not this singular case point to a rapidly failing vital force of the bird while laying as the cause of the abnormal colouring of the eggs?—ROBERT SERVICE (Maxwelltown, Dumfries, N.B.)

DESFONTAINE'S 'BIRDS OF BARBARY.'—Referring to the notice of the reprint of Desfontaine's *Memoir of the Birds of Barbary* in your last number (p. 376), may I be allowed to state that the entire work, text as well as plates (with the exception of Prof. Newton's introductory remarks), was reproduced by photo-lithography? Its literal accuracy is therefore unimpeachable. I am glad to state that Sir Andrew Smith's 'Birds of South Africa,' which has hitherto been almost inaccessible from the extreme rarity of the 'South African Journal,' in which it was originally published, is printed, and only awaits the completion of the index for delivery. These works, with Tunstall's 'Ornithologia Britannica,' already issued to the subscribers, and A. A. H. Lichtenstein's 'Catalogus rerum naturalium rarissimarum' (Hamburg, 1793), now in progress, will complete the issue of the Willughby Society for 1880.—W. B. TEGETMEIER (Finchley, N.)

TURTLE DOVE BREEDING NEAR YORK.—I have eggs of the Turtle Dove in my collection, which were taken from a nest in a fir plantation at Acomb, near York. Four nests containing eggs were found within a short distance of each other. I think this worthy of record, because, so far as my experience goes, the Turtle Dove's nest is a rarity so far north.—WALTER RAINE (Leeds).

LATE NESTING OF THE NIGHTJAR.—In 'The Field' of July 31st there is a notice of the nest, or rather the eggs, of the Nightjar having been found as late as July 26th. I can give another instance of the late nesting of this species. On July 24th two eggs were found by some children near Westleton, in this county, who put the old bird off; one of them was taken, and, upon being blown, the contents showed that incubation had only very recently begun.—G. T. ROPE (Blaxhall, Suffolk).

[In 'The Field' of August 21st a correspondent states that he found a Nightjar, in Sussex, sitting on two eggs on August 17th.—ED.]

BREEDING OF THE SHOVELLER IN THE STEWARTRY OF KIRKCUDBRIGHT.—Col. Gordon Maitland, of Kenmure, shot two fine young male Shovellers on the island in Loch Ken on August 2nd. There were three or four more of them, evidently a brood that had been hatched somewhere about the head of Loch Ken. This duck, although occasionally met with during winter, has very rarely been known to breed in this country, but of late years several instances have been recorded of its breeding in the northern parts of Britain. Capt. Clark Kennedy has met with the Shoveller breeding on Cally, in June, 1878; and at a late meeting of our local Natural History Society, Mr. Hastings, of English Street, stated that a young female Shoveller had been sent to him in August, 1879, from Kirkmahoe, where it had doubtless been bred. According to Mr. Harvie Brown, the Shoveller and several other species of ducks are showing a tendency to extend their breeding range in a southerly direction. By a due observance of the Protection Acts on the part of sportsmen, we may look for such instances as the above increasing year by year.—ROBERT SERVICE (Maxwelltown, Dumfries, N.B.)

NESTING OF THE NIGHTINGALE IN EAST YORKSHIRE.—We have had a pair of Nightingales here this summer, which have nested with us and brought off the young ones safely. They left us a little more than three weeks ago.—L. H. WEST (Glenrock, Brough, East Yorkshire).

DIPPER RETURNING TO ITS OLD NEST.—On the 17th March last, when trouting on a stream in Welcombe parish, North Devon, I showed a friend an *old* nest of the Dipper, he not having seen a nest of that bird before. This nest I had found the previous season (1879) with young in it. My friend would examine it, though I said, "It is of no use doing that," when all of a sudden, to my surprise, the old bird flew out from under his hand, leaving five eggs, two of which my friend took.—W. JESSE.

GREENLAND FALCON IN THE CO. DONEGAL.—Through the kindness of a correspondent in the County Donegal, I have just received a specimen of the Greenland Falcon, *Falco candicans*, which was taken some time since in his neighbourhood. He states that, as near as he can recollect, it was about

Hallowtide (Nov. 1st), 1877, that it was caught alive by a farmer in a warren on the north-west shore of the entrance of Lough Foyle. It had gorged itself on a rabbit, and allowed itself to be caught without difficulty. It was kept alive for two or three days on raw beef, and then died, when the skin, now before me, was preserved by a bird-fancier, a sergeant of police in the neighbourhood. It is to be regretted that when first captured it did not find its way to some practical falconer, who would doubtless have turned so great a prize to good account.—J. E. HARTING.

COLOUR SENSE IN BIRDS.—In a recent number of 'Nature,' a correspondent of that journal makes the following interesting observations on colour sense in birds:—"I have been lately watching," he says, "with great delight, two Goldfinches building their nest. They placed it nearly at the end of an outside branch of a young sycamore tree, so that there was nothing but sky above it, and the gravel-path below. The window from which I observed them, being never opened, and well covered with flowers in pots and a blind, seems to have caused them no alarm, although not more than two yards distant from them; and their object appears to have been to make their nest invisible from below. To this end they chose their building materials with such skill and such colour-matching power that if one had not seen the nest built it would be quite impossible to discover it; to match the tree they took its long flexible blossoms, and to match the sky the equally long and flexible stalks and flowers of the garden forget-me-not, of which a bed was close at hand in full bloom. I watched them carefully, and, as far as I could see, they used no other materials than these flowers, though I saw one of them attempting to get the dirty-white cotton tie off a budded rose tree. At all events, the nest was mainly built of them. The blue of the forget-me-not has of course faded, but the general effect from below is that of a scarcely visible grey-green thickening of one of the bunches of sycamore leaves. They seemed to enjoy flinging their flower-wreaths about. And that leads to the question whether birds—who are in many ways like children—do not often, out of mere playfulness and love of colour, pull to pieces yellow crocuses and other bright flowers."

ALPINE SWIFT IN YORKSHIRE.—On April 17th I saw an Alpine Swift at Scarborough, the first of the Swallow tribe I saw this year. It was about at intervals for a fortnight or so, after which I saw it no more.—L. H. WEST (Glenrock, Brough, East Yorkshire).

WHINCHAT IN CORNWALL.—On August 22nd I saw a Whinchat in our garden. As this is a rare bird in Cornwall, I thought you might like to publish its occurrence in 'The Zoologist.' I am quite sure it was the Whinchat and *not* the Stonechat, as I watched it for some time through a telescope, and clearly saw the white stripe over the eye.—HERBERT P. HART (Polbrean, The Lizard).

ORNITHOLOGICAL NOTES FROM NORFOLK, 1878.—The full title to Mr. Stevenson's communication under this heading in the August number of this Journal (p. 325) should have been "Ornithological Notes from Norfolk for 1878 and 1879."

ON THE PERIOD AND INTERVALS AT WHICH THE COMMON LIZARD CASTS ITS SKIN.—I have long been aware that our Common Lizard, *Zootoca vivipara*, periodically casts its skin; but I have lately discovered, to my surprise, that no mention of this fact is made either in Bell's 'History of British Reptiles' or in 'Our Reptiles,' by M. C. Cooke, the two familiar text-books on the subject. Neither is any information on this point afforded by the excellent 'Manual of British Vertebrate Animals,' by the Rev. L. Jenyns, nor in Lord Clermont's 'Guide to the Quadrupeds and Reptiles of Europe.' Indeed, at the present moment, I can only remember to have met with one allusion to this change of skin in the Lizard, and this, a very brief one, is contained in Fleming's 'History of British Animals.' That author writes as follows (p. 151):—"Colours vary with the condition of the cuticle, which is frequently renewed. Before casting, the colours are brownish black; after they change, dark green and yellow tints prevail." There being, then, such a dearth of information on the subject, I cannot doubt that the following observations, made during the present summer by my friend Miss C. Hopley, will be perused with interest. This lady, who has for some time past been engaged in a special study of the *Reptilia*, writes as follows:—"A small English Lizard, *Zootoca vivipara*, in my possession has cast her coat three times within seven weeks. Her first change was on June 26th, the rough, dingy garment of last year's growth coming off in pieces. Whereas the colouring had been dull and almost undefined, behold the little creature now in a dress of pale sage-green, with stripes of rich dark velvet, her throat creamy white, and the whole under part of a beautiful buff colour, soft, smooth, bright, and shaded like a delicate shell. On July 20th, with no previous indication (except that the new attire was not very tight-fitting—a circumstance attributable to sparseness of diet), this still lovely garment was cast off entire, and reversed—even the sleeves are there. The claw-coverings of the hind legs were detached from the rest, and look like diminutive gloves. Her colour this time might be just a trifle darker above, but still of the same delicate hue, and with very slight indications of spots. On the afternoon of August 15th, and within three-quarters of an hour from the time I had placed the glass cage in the sunshine, I was surprised to find a third cast-off dress, and in a still more perfect condition than the former sloughs, one sleeve being entire to the very tips of the slender fingers. One leg is equally entire and unreversed, showing that she had slipped the limb easily out of it. Another Lizard, *Lacerta agilis*, donned her summer

attire on July 16th, and eighteen days afterwards—*viz.* August 4th—she had another new dress, both the discarded ones being reversed and almost entire. The head-shields do not appear to be renewed at each sloughing, nor are the tail-scales always doffed at the time, but come off in whorls by slow degrees, the tip last. One Green Lizard had a new coat for only his tail early in May—a postponement, no doubt, of the completion of his last year's attire. In each case the sloughing has occurred when the Lizards have been exposed to the full sunshine; and it would be interesting to know if these frequent changes are a sign of health or the contrary, and whether the sloughing is dependent on the temperature and condition of the animal. They all feed poorly, being capricious in their tastes, and not approving their London diet. When, through the benevolence of some suburban friend, a supply of fresh garden insects can be presented to them, on these they pounce with gusto." The most remarkable circumstance in connection with the changes observed is the frequency with which the cuticle is cast; for it would hardly be supposed that the new skin would be in a condition to be again shed in less than a month from the previous casting. Yet such appears to be the fact.—J. E. HARTING.

SPREAD OF DISEASE BY THE AGENCY OF EARTHWORMS.—Recent researches by M. Pasteur appear to throw considerable light on the origin of anthrax, or splenic fever, and allied diseases, which attack cattle, sheep, &c. When an animal dies of anthrax it is not uncommonly buried on the spot. The conditions of putrefaction prove fatal to the small parasitic organism, or *bacteridium*, which is abundant in the blood at death. The gas given off causes it to break up into dead and harmless granulations. But before this can occur not a little of the blood and humours of the body has escaped into the ground about the carcase, and here the parasite is in an aerated medium favourable to the formation of germs. These corpuscular germs M. Pasteur has found in the soil, in a state of latent life, months and years after the carcase was buried, and by inoculation of guinea-pigs with them has produced anthrax and death. Now it is specially notable that such germs have been met with in the earth at the surface above the place of burial, as well as near the body. The question arises, How came they there? And it would appear that earthworms are the agents of conveyance. In the small earth-cylinders of fine particles which these creatures bring to the surface and deposit after the dews of morning or after rain, one finds, besides a host of other germs, the germs of anthrax. The same process was proved also by direct experiment. Worms kept in ground with which *bacteridium* spores had been mixed were killed after a few days, and many of the spores were found in the earth-cylinders in their intestines. The dust of this earth, after the cylinder, having been

disaggregated by rain, gets blown about on the neighbouring plants, and the animals, eating these, thus receive the germs into their system. It is suggested that possibly other diseased germs, not less harmless to worms, but ready to cause disease in the proper animals, may be in like manner conveyed to the surface in cemeteries. This would furnish a fresh argument for cremation. The practical inference as to anthrax is that animals which have died of this should not be buried in fields devoted to crops or pasturage, but wherever possible in sandy, calcareous ground, poor and dry—unsuitable, in a word, for worms.

OBSERVATIONS ON ANTS, BEES AND WASPS.—At a meeting of the Linnean Society, held June 17th last, the following interesting observations were communicated by Sir John Lubbock, under the above title:—A dead blue-bottle fly was pinned down, and after vain efforts at removal the selected ant hied home and emerged with friends, who slowly, and evidently incredulously, followed their guide. The latter, starting off at a great pace, distanced them, and they returned, only, however, to be again informed, come out, and at length be coaxed to the prey. Several experiments made with different species of ants, and under varied circumstances, seem to indicate the possession of something approaching language. It is impossible to doubt that the friends were brought out by the first ant, and, as she returned empty-handed to the nest, the others cannot have been induced to follow merely by observing her proceedings. Hence the conclusion that they possess the power of requesting their friends to come and help them. In other experiments testing the recognition of relations, although the old ants had absolutely never seen the young ones until the moment (some days after arriving at maturity) they were introduced into the nest, yet in all cases they were undoubtedly recognised as belonging to the community. It would seem, therefore, to be established that the recognition of ants is not personal and individual, and that their harmony is not due to the fact that each ant is acquainted with every other member of the community. It would further appear from the facts that they recognise their friends even when intoxicated, and that they know the young born in their own nest, even when they have been brought out of the chrysalis by strangers, that the recognition is not effected by means of any sign or password. With regard to workers breeding, the additional evidence tends to confirm views previously advanced, that when workers lay eggs males are always the issue of these. Without entering into details of instances, it may broadly be affirmed that in the queenless nests males have been produced, and not in a single case has a worker laid eggs which have produced a female, either a queen or a worker. On the contrary, in nests possessing a queen, workers have been abundantly produced. These curious physiological facts lead to the presumption that, as in the case of

bees so also in ants, some special food is required to develop the female embryo into a queen. In Sir John's nests, while from accidents and other causes many ants are lost during the summer months, in winter nevertheless there are few deaths. Specimens of *Formica fusca* and *F. sanguinea*, still lively, are now four, and others five, years old at least. The behaviour to a strange queen often results in her being ruthlessly killed; yet as communities are known to have existed for years, queens must occasionally have been adopted. With the view of trying how far dislike and passion might be assuaged by a formal temporary acquaintance, a queen of *F. fusca* was introduced into a queenless nest, but protected by a wire cage, and after some days the latter was removed, but the queen was at once attacked. Mr. M'Cook nevertheless relates an instance of a fertile queen of *Cremastogaster lineolata* having been adopted by a colony of the same species. Such difference in conduct, Sir John suggests, may be due to his own ants having been living in a republic, for it is affirmed that bees long without a queen are strongly averse to adopting or accepting another. Furthermore, if a few ants from a strange nest are put along with a queen they do not attack her, and if other ants are by degrees added the throne is ultimately secured. In pursuance of experiments to test the sense of direction, some ants were trained to go for their food over a wooden bridge made up of segments. Afterwards, when they had become accustomed to the way, and an ant was in the act of crossing, a segment was suddenly reversed in direction, evidently to the ant's discomfiture; she then either turned round, or, occasionally after traversing the bridge, would return. When, however, similar pieces of wood were placed between nest and food and the ant at the middle piece, those at the ends being transposed, the ant was not disconcerted. In other instances a circular paper disk was placed on a paper bridge, and when the ant was on the disk this was revolved, but the ant turned round with the paper. A hat-box, with holes of entrance and exit pierced at opposite sides, was planted across the line to the food; when the ant had entered and the hat-box reversed, therefore with holes in opposite directions, the ant likewise wheeled about, evidently retaining her sense of direction. Again, with the insect *en route*, when the disk or box with the ant within was merely shifted to the opposite side of the food, without being turned round, the ant did not turn round, but continued in what ought to have been the direction of the food, and evidently was surprised at the result on arriving at the spot where the food had previously been. In opposition to the opinion expressed by M. Dewitz, Sir J. Lubbock regards the ancestral ant as having been aculeate, and that the rudimentary condition of the sting in *Formica* is due to atrophy, perhaps attributable to disuse. A ground plan of the nest of *Lasius niger* is given by Sir John, which exhibits an intricate narrow and winding entrance passage; the main nest-cavity is further supported by pillars, and here and there protected recesses

are formed—evidently strategical retreats in times of danger. Studying the relations and treatment of the Aphides, or plant-lice, by the ants, Sir John clearly demonstrates that not only are the Aphides kept and protected in the ants' nests, but the eggs of *Aphis*, laid outside on the leaf-stalks of its food-plant in October, and exposed to risks of weather, are carefully brought by the ants into their nests, and afterwards tended by them during the long winter months until March, when the young are again brought out and placed on the young vegetable shoots. This proves prudential motives, for though our native ants may not lay up such great supplies of winter stores of food as do some of those found abroad, they thus nevertheless take the means to enable them to procure food during the following summer. The fact of European ants not generally laying up abundant stores may be due to the nature of their food, and these cannot always be kept fresh. They may also not have learned the art of building vessels for their honey, probably because their young are not kept in cells, like those of the honey-bee, and their pupæ do not construct cocoons, like those of the humble-bee. Our English ants, nevertheless, store proportionately to their size; for if the little brown garden ants be watched milking their Aphides, a marked abdominal distension is observable. The paper concludes by a history and technical description of a new species of Australian honey-ant. This corroborates Wesmael's strange account of the Mexican species; certain individual ants are told off as receptacles for food—in short, they become literally animated honey-pots.

NOTICES OF NEW BOOKS.

A Handbook of Deer Stalking. By ALEXANDER MACRAE, late Forester to Lord Henry Bentinck. With an Introduction by HORATIO ROSS. Edinburgh and London: Blackwood and Sons. 1880. Post 8vo, pp. 85.

THE writer of this excellent little manual, who has filled the place of forester for many years in one of the best Highland deer-forests, is evidently a man of great observation, and has improved the opportunities which he has enjoyed of making himself thoroughly acquainted with the habits of Red-deer, and the whole science of stalking them. We have read every word of his book, and like it much. Although written for the use of sportsmen, it contains much to interest naturalists, for in the remarks which are made concerning the keen sense of smell, and the power of vision, possessed by the Red-deer, a considerable insight is afforded into the ways and habits of this noble beast.

The author condemns the practice of driving as "a coarse way of going to work, depending for its success not so much upon knowledge as upon force"; and Mr. Ross, in his Introduction, we are glad to see, thoroughly endorses this opinion. Driving large herds of deer to passes he considers very injurious to a forest, and a most cockney, unsportsmanlike proceeding, reducing the noble sport of deer-stalking to a level with a "battue of pheasants and hares."

When a sportsman of fifty years' experience states, as Mr. Ross does in his Introduction, that this little book is "the very thing that was required," that "every old stalker will read it with delight, and every beginner with advantage," we feel that it is *his* opinion that should be taken, and not that of the reviewer. We abstain, therefore, from offering any criticism, the more so since our experience does not justify us in writing with any show of authority on the subject.

The book is capitally printed on thick paper with a good margin, and illustrated with two excellent photographs of deer, alive and dead.

Of Englishe Dogges, the diversities, the names, the natures, and the properties. A short Treatise written in Latine by JOHANNES CAIUS, of late memorie, Doctor of Phisicke in the Universitie of Cambridge. And newly drawne into Englishe by ABRAHAM FLEMING, Student. Imprinted at London. 1576.

THE original work of Dr. John Kay was published in 8vo in 1570, under the title 'Johannis Caii Britannici de Canibus Britannicis, Liber unus,' and in 1576 an English translation by Abraham Fleming appeared in 4to. This translation, copies of which are extremely rare, has just been reprinted in 8vo for the proprietors of 'The Bazaar' and 'The Exchange and Mart,' 170, Strand.

As the earliest work on dogs in the English language it is a very curious production, and although not reproduced in facsimile, the original being in old English black letter, it is a reprint line for line, and even error for error, the arrangement and general character having been carefully preserved throughout, while the title-page is an exact copy taken by photography from a copy of the work in the British Museum.

In a dedicatory epistle written in Latin in a very pedantic style, and replete with fulsome praise of the Dean of Ely, to whom it was dedicated, the translator informs us that Dr. Kay's work, which he calls "an epitome concerning British dogs," was originally written (several years before it was printed) for the information of Gesner, who was engaged at that time in the preparation of his '*Historia Animalium*,' which was published in 1551. He, Fleming, being, as he says, delighted with the novelty of its appearance, conceived the idea of translating it into English, and this we believe is the only translation extant. Whether it be an accurate one or not (the writer himself terms it "a free interpretation") we need not here enquire. It will suffice if we give a single extract for the benefit of those who may be unacquainted with the work, and who may be curious to judge of its style and the nature of the information imparted.

Treating of the sheep-dog, the translator says:—

"Our shepherdes dogge is not huge vaste and bigge, but of an indifferent stature and growth, because it hath not to deale with the bloudthyrsty wolf, sythence there be none in England, which happy and fortunate benefite is to be ascribed to the puisaunt Prince *Edgar*, who to th'intent ye whole countrey myght be evacuated and quite clered from wolves, charged and commaunded the welshmen (who were pestered with these butcherly beastes above measure) to paye him yearely tribute which was (note the wisdom of the King) three hundred wolves. Some there be which write that *Ludwall*, Prince of Wales, paide yeerly to King *Edgar* three hundred wolues in the name of an exaction (as we have sayd before). And by the meanes hereof, within the compasse and tearme of foure yeares none of those noysome and pestilent beastes were left in the coastes of England and Wales. This *Edgar* wore the crowne royall, and bare the scepter imperiale of this kingdome about the yeere of our Lorde nyne hundred fifty-nyne. Synce which time we reede that no wolfe hath been seene in England, bred within the bounds and borders of this countrey, mary there have bene divers brought over from beyonde the seas, for greedynesse of gaine and to make money for gasing and gaping, staring and standing to see them, being a straunge beast, rare, and seldom seene in England."

It need scarcely be remarked that the statement to the effect that there have been no native wolves killed in England since Edgar's time is not only opposed to the fact, but there is abundant evidence to show that they existed in this country for several centuries afterwards. See '*The Zoologist*' for 1878, p. 464.

A History of British Birds. By the late WILLIAM YARRELL, V.-P.L.S., F.Z.S. Fourth edition. Revised by ALFRED NEWTON, M.A., F.R.S., Professor of Zoology and Comparative Anatomy in the University of Cambridge. Part XIII. June, 1880. Van Voorst, Paternoster Row.

SINCE our last notice of this work it is satisfactory to be able to announce the appearance of another part (Part xiii.), and, although a longer interval has elapsed between the publication of this and the preceding numbers than could be wished for, we must be thankful for small mercies, and hope, now that the editor has disposed of the troublesome order *Passeres*, more rapid progress will be made towards the completion of the work.

In the number before us the species dealt with are the Pie, Jay, Nutcracker, Swallow, Martin, Sand Martin, Purple Martin, concluding the *Passeres*, and the Swift, Alpine Swift, Nightjar, and a portion of the Cuckoo, as a first instalment of the *Picariæ*.

A noticeable feature in the present part is the very complete account given of the Nutcracker, as compared with the somewhat meagre information supplied in the third edition of the work, more particularly as regards the nidification of this bird, the older accounts of which, as Professor Newton remarks, "have proved to be mere suppositions, and very wide of the mark."

The reliable information which we now possess concerning the breeding of the Nutcracker has been collected from the observations of different naturalists, made for the most part long subsequently to the publication, in 1856, of the third edition of this work. Indeed, since that date so much fresh material has come to hand, not only as regards the nidification but also the geographical distribution of this species, that Professor Newton may be said to have written an entirely new and original account of it.

No less interesting and valuable is the chapter upon the Cuckoo (or, as he prefers to write it, "Cuckow"), which, however, remains incomplete until the appearance of the next part.

Referring to the average date of the arrival of this bird in England, which he considers to be "about the middle of April," he says:—"Its arrival has frequently been reported in March, or earlier still, but such records must be treated with

suspicion, if not incredulity. Mr. Harper says (Zool., p. 3115) that a Cuckow's egg was taken in Norfolk, April 5th, 1851, and (p. 3145) that on the 14th of the same month he saw two, one of which he shot. Mr. Borrer informs the editor that in a series of observations made in Sussex for more than twenty years, April 6th, 1844, was the earliest day on which he noticed the Cuckow's appearance."

A Comparative Catalogue of Birds found in Europe and North America. By PERCY EVANS FREKE. Separately printed from the Scientific Proceedings of the Royal Dublin Society. Read December 15th, 1879.

THROUGH the courtesy of the author, we have received a copy of a Catalogue with this title, which bears evidence of having been compiled with considerable care. Unfortunately the writer has drawn no conclusions of any kind from the statistics which he has collected, and each individual reader is left to ascertain for himself what proportion of North-American species have found their way to Europe; to what particular order of birds these transatlantic visitors chiefly belong; by what line of route they probably travel; and whether their visits are more frequent at one season than another. Upon these and other interesting points we should like to have had some expression of opinion from Mr. Freke, who apparently has been content to act the part only of a gleaner, leaving it to others to thrash out and separate the grain from the husk.

In connection with the subject we may take this opportunity of directing attention to Mr. J. Dalgleish's "List of occurrences of North-American Birds in Europe," of which two parts have appeared in the 'Bulletin of the Nuttall Ornithological Club' for April (pp. 65—74) and July (pp. 141—150). We have not yet found leisure to compare these two lists, but it would doubtless be desirable to do so, as well as Professor Spencer Baird's memoir "On the Distribution and Migrations of North-American Birds" ('Ibis,' 1867, p. 257), before attempting to draw conclusions on any of the points above suggested.
